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BAND 10. N:o 12.

Mammals collected by H. R. H. Prince Vilhelm's Expedition to British East Africa 1914.

By

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When H. R. H. Prince VILHELM had returned from his shooting expedition to British East Africa it pleased H. R. H. to present to the R. Natural History Museum a valuable collection of mammals in addition to the collection of birds which I have had the honour of describing before.[1] This collection of mammals contains about 115 specimens of various small mammals and in addition to this several heads of antelopes and other game. Especially among the former there are several forms of special interest and even new ones. Among the latter I have the honour of dedicating a new *Dendrohyrax* to H. R. H. to whom the Museum is indebted for this valuable donation.

The specimens have been mostly collected at Donya Sabuk and are prepared by Mr. CH. A. TURNER, who has done his work very well.

? Cercopithecus pygerythrus johnstoni POCOCK.

A semiadult female (last upper molar not quite up) collected near Juja farm about the end of Jan. 1914.

[1] Ark. f. Zool., Bd. 9, N:o 14.

It is rather difficult to decide concerning a semiadult female of this group to which of the named geographical races it belongs, but comparing this specimen as well with specimens from the Kilimanjaro district (thus true *johnstoni*) as with such from the Kenya district I have found it more similar to the former, and I have thus used this name.

As I have some personal knowledge about the Guenons of this part of East Africa, I shall take the liberty of writing a few lines which I hope may serve to, partly at least, throw some light on these animals which have been rather carelessly treated in D. G. ELLIOT's »A Review of the Primates». In British and German East Africa two subgeneric groups of Guenons are generally distributed, and both of them have developed a certain number of more or less distinct forms in suitable localities, but in every case there is, of course, only one member of either group in each district. This indicates that the different forms substitute each other and are to be regarded as geographic forms. These two groups are:

1:o The *æthiops*-group according to POCOCK 1907, or *Chlorocebus* as defined by ELLIOT 1913. This is the »Tumbili» of the natives, which chiefly inhabits the gallery-forests fringing the rivers, thornbush with acacias, and partly other xerophilous, more or less open forests, and usually lives at less altitude than the members of the next group.

2:o The *albogularis*-group of POCOCK 1907, for which ELLIOT 1913 has proposed the subgeneric name »*Insignicebus*» (!) (a nomen mixtum et barbarum, composed of a latin and a greek word). This is the »Kima» of the natives, dark Guenons which inhabit the primeval forests up to the tree-limit on the mountains, but from this region extend their distribution all through the evergreen forest-region to its lowest edge skirting the steppe country. The Kima is, however, decidedly more of a forest monkey than the Tumbili.

For Tumbilis from East Africa ELLIOT has used several specific and subspecific names. The Tumbili from Fort Hall ELLIOT has named *Cercopithecus rubellus*, later *Lasiopyga rubella*, regarding it as a distinct species. In the description he says -- — »no white on under parts». He calls it »a reddish monkey quite different in coloring from its paler relatives of the *L. centralis* style», to which latter *johnstoni*

from Kilimanjaro is referred. Such a statement as this is, I regret to say, very misleading. Anyone who like myself collects Tumbilis in the neighbourhood of Fort Hall and finds Guenons with the lower side white or whitish, cannot believe to have found ELLIOT's *rubellus* (first described 1909), but a very different animal. In such a way I was led to believe that the Guenons which I collected 1911 at the native village Kanyakeni not very far from Fort Hall, and other places in this district, belonged to quite another species, and I identified[1] them, although with some hesitation, with the race »*centralis lutea*» described by the same author from a locality not very distant. Later on I have, however, been informed that the ventral surface of the type of ELLIOT's »*rubellus*» (kept in Brit. Mus. Nat. Hist.) is not at all buff, but »white or dirty white — caused by dirt on the hair». It could thus properly have been described as »whitish». Since this information has been obtained the whole thing is quite clear, the type of *rubellus* has had the white hair of its ventral surface stained with the red laterite soil of its native country (like a genuine Kikuyu animal). On this the author has based his description of the colour of the animal »no white on under parts — — — throat, inner side of arms and legs pinkish buff; abdomen and anal region cream buff»! Since, however, these matters have been set aright it is evident that the specimens from Kanyakeni etc. which I (l. c.) referred to *Cercopithecus pygerythrus luteus* really must bear the older name *rubellus*. But when the buff colour of the under parts of the *rubellus* has been taken away, it appears rather possible that the same of *luteus* ought to be reduced for similar reasons. It must also be remembered that the last mentioned name was based on two immature females. Such young animals always have a duller (less »reddish») colouration than the fully adult ones, especially the males. A characteristic on which ELLIOT also appears to have put some value is that *luteus* shall have »feet iron grey», This is, however, as I have pointed out before, probably a juvenile, or feminine characteristic,[2] and then the difference be-

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[1] K. Sv. Vet. Akad. Handl. Bd. 48, N:o 5, p. 37.

[2] F. i. young *C. p. johnstoni* have more or less grey feet, while those of the adult are black.

tween *luteus* and *johnstoni* is highly reduced, if specimens of the same age and sex are compared.

According to the »key» which ELLIOT has published for the Guenons of this group, and the same statement is also repeated in the descriptions (l. c. p. 346), *johnstoni* should have the »chin white», while *luteus* is said to have »chin black». When I read this I was much astonished, because the whole series of Tumbilis from the Kilimanjaro-district (thus to judge from the locality true *johnstoni*) kept in this museum have the chin blackish. To make sure about this I took the liberty of writing to British Museum Nat. Hist. and ask about the condition of the type of *johnstoni* in this respect. In reply to this I was favoured with a letter from Mr. G. DOLLMAN in which he stated: »the chin proper in the type is clothed with dark hairs; the white hairs only appearing posterior to the real chin». Thus this difference as well is abolished. New material of adult animals and renewed examination of this is needed before it can be decided whether ELLIOT's *luteus* can be maintained, or whether it must be united with either *johnstoni* or *rubellus*.

The latter is also by far not so strongly different from other races of East African Tumbilis as one can be led to believe from ELLIOT's description even with regard to the colour of its upper parts. This is proved by my material from Kanyakeni, all adult males shot out of the same band. Some are more reddish »tawny», others more ochre-coloured with black speckling. The latter differ thus less from *johnstoni* POCOCK, although, as I have pointed out before, the »reddish» resp. ochre-colour extends further back in the specimens from Fort Hall and adjoining district so that they can be distinguished from equally old specimens of the *johnstoni* race of Kilimanjaro.

With regard to the Kima monkeys of the *albogularis* group inhabiting East Africa ELLIOT has made himself guilty to several mistakes. The Kima of Kilimanjaro was correctly described by the present author 1908 under the name *Cercopithecus albogularis kibonotensis*. The subspecific name was selected from the name of the type locality Kibonoto. When quoting this ELLIOT manages to spell the name correctly a few times, but otherwise he uses mostly names of his own invention such as *kinobotensis*, *kobotensis*, as if it was a game

of letters. ELLIOT tries further to throw some doubts on the validity of this subspecies by saying that *albogularis* proper »has been taken in rather close proximity [to Kilimanjaro], such as Nairobi forest etc.» This is, however, entirely erroneous because the member of the *albogularis*-group which is to be found in the Nairobi district is quite a different animal viz. *Cercopitecus kolbi* NEUMANN, even if the Kima of Nairobi has been referred to as *C. albogularis*, before its difference had been stated, and before the name *kolbi* had been given.

Petalia revoili ROBIN.

A specimen (♂) collected $^{26}/_{1}$ 1914 near Juja farm belongs to the *tebaica*-group, and to judge from the dimensions it ought to be *P. revoili* ROBIN.

Length of forearm	43	mm.
» » tail	51	»
» » ear from lower margin	31	»
» » » » inner »	28	»
Total length of skull	18,5	»
Basal » » »	15	»
Length of maxillary tooth-row	6,6	»
Mastoid width	9	»
Greatest frontal width	7,7	»

This species, although belonging to the Somalifauna, has been reported by GLOVER M. ALLEN from Guaso Nyiro, where I also met with so many other animals of the same faunistic type. The present find extends the boundary line still further south.

Crocidura fumosa THOMAS.

1 ♀ from Juja farm $^{21}/_{1}$ 1914; 5 ♂♂, 5 ♀♀ from Donya Sabuk $^{27}/_{1}$—$^{5}/_{2}$ 1914.

Some of these specimens are paler than the others and approach more or less OSGOOD's subspecies *schistacea* in having the tail bicolor and in being more greyish above and paler below than the typical *fumosa*. On the other hand there are also from the same localities dark specimens with the tail all dark. OSGOOD's type of *schistacea* was from Lukenya Mountain, British East Africa.

According to the collectors measurements the length of head and body of these 11 specimens varies between 76 and 87 mm., the length of the tail between 47 and 56 mm.

Crocidura turba zaodon Osgood.

9 ♂♂, 3 ♀♀ (and a single skull) from Donya Sabuk $^{27}/_{1}$ —$^{16}/_{2}$ 1914.

I think that the whole of this series ought to be referred to *turba*. Many of them are also large enough to correspond to Osgood's subspecies *zaodon*. According to the collectors measurements (written on the label) some specimens appear to have had somewhat smaller dimensions than the diagnose of *C. t. zaodon* admits. In some cases this discrepancy may be due to a mistake, but this is not always the case. I think therefore that the limits of the variation in size of this shrew are wider than Osgood's material indicated, and that therefore the average size is smaller. The smallest specimen in this collection is stated to have measured head and body 74 mm., tail 55 mm., while Osgood puts the minimum to resp. 89 and 56 mm.

The type locality of *C. t. zaodon* is Nairobi, and the present collection has thus been made not very far from this place. The difference must even for this matter be of only little importance.

These two dark species of shrews, which now have been mentioned, appear to be quite dominating at Donya Sabuk as no specimen of the more brownish species is to be found in the present collection.

Paraxerus jacksoni De Winton.

9 ♂♂ and 4 ♀♀ from Donya Sabuk $^{31}/_{1}$—$^{19}/_{2}$ 1914.

The members of this very fine and interesting series appear to be more richly coloured (especially on the feet and lower parts) than the scrub-squirrels which I had the opportunity of collecting as well in the Kikuyu-country as at Meru some years before, but at the same time they display a certain amount of variability, which proves, how difficult it is to establish races or species of squirrels on differences in colour.

Irrespective of age and sex some specimens have the yellow rings of the hair of the back more pronounced, and by this a stronger greenish lustre is produced than in such cases as when the rings are more whitish. If the pale rings are narrow the general colour is much darker than otherwise. In the tail as well, the amount of yellow is much variable. In some cases the subterminal portion of the hair of the tail is very broadly and vividly ochre yellow, and such hairs appear always to be new, while other hairs even perhaps in the same specimen are white, or at least whitish. Such hairs may in some cases be worn and bleached, but in others they look quite fresh. The lower side of the tail is always much more yellow than the upper, and in some cases the black and yellow rings of the hairs form very conspicuous transverse bars across the lower side of the tail, while in others no such bars are discernible.

The lower side of the body is also differently coloured in different individuals. Throat and chest are palest, in most cases »Naples yellow» (DAUTHENAY, Rép. de coul. 29,1 and 2), but sometimes »honey yellow» (l. c. 35,1). The colour of the belly and the inside of the legs is somewhat more saturated honey yellow, or »yellowish tan» (l. c. 315,1), or even »ru ochre» (l. c. 314,1). The genital region is often more richly coloured.

The hind feet are always brightly coloured from »yellowish tan» (l. c. 315,1) to »Mars yellow (l. c. 316,4). The fore feet are always much less brightly coloured, usually in some dull shade of »yellowish tan».

The following measurements of five skulls show the cranial dimensions.

	♂	♂	♂	♀	♀
Maximum length of skull	41,5 mm.	40,5 mm.	42,8 mm.	40 mm.	40 mm.
Condyloincisive length	36,4 »	36,8 »	37,9 »	36 »	35,6 »
Zygomatic width	23,1 »	22,5 »	23,3 »	—	—
Least interorbital width	12,4 »	11,1 »	11,6 »	11,2 »	11,4 »
Upper molar series	7,4 »	7,6 »	7,3 »	7,5 »	7,5 »
Length of nasals	11,5 »	10,5 »	11 »	10,6 »	11,3 »

At another opportunity[1] I have said that it is difficult to maintain the Nairobi Scrub-Squirrel, *Paraxerus jacksoni*

[1] Mammals coll. Brit. E. Afr., K. Sv. Vet. Akad. Handl., Bd. 48, n:r 5.

capitis THOMAS as a subspecies distinct from the typical *P. jacksoni*, although I admit that the former as a rule is less dark above and more whitish on the lower side, but intergrading specimens are to be found in nearest neighbourhood of Nairobi.

It is the same difficulty connected with exact classification of these specimens as well, as may be concluded from the above written description of the specimens.

Graphiurus parvus dollmani OSGOOD.

1 ♀ from Donya Sabuk $^{27}/_{1}$ 1913.

Otomys angoniensis elassodon OSGOOD.

A fine series of 6 ♂♂ and 6 ♀♀ from Juja farm, and 10 ♂♂ and 4 ♀♀ from Donya Sabuk, young and old.

The largest specimen, a male from Donya Sabuk has the greatest length of the skull not less than 43 mm., zygomatic breadth 21,5 mm., greatest breadth across nasals 10 mm.

Mylomys cunninghamei massaicus n. subsp.

Two Rats of this interesting genus, so easily recognized on the characteristic structure of the dentition, have been collected at Donya Sabuk resp. Jan. 31 and Febr. 18, 1914.

The measurements of the skull of the largest specimen which is a female are as follows:

Greatest length	37 mm.
Condyloincisive length	34,2 »
Greatest breadth	17,8 »
Length of nasals	13,5 »
Combined breadth of nasals	4,7 »
Least interorbital width	5 »
Diastema	9 »
Length of palatal foramina	8 »
» » molar series	8 »
Breadth across outside m^1	7,4 »
» of m^1	2,8 »

As the sutures of the skull all of them still are open, and the teeth not much worn, the specimen must not be very old, although, of course, it is fully adult. THOMAS

type of *Mylomys cuninghamei* was an adult male, but nevertheless almost all dimensions of the type skull[1] as quoted by THOMAS are considerably smaller than those recorded above. It appears therefore probable that the *Mylomys* of Donya Sabuk constitutes a larger race than that of the Aberdare Mountains, which I venture to design with a subspecific name *massaicus*. Its colour above is grizzled black and pale buffish. On the posterior part of the back the colour becomes richer, »Mars yellow» (DAUTHENAY, Rép. de Coul. 316,3) mixed with black. On the sides of the root of the tail, on the tighs and hind legs this colour is quite dominating. A tuft of the same colour is also seen at the base and inside of the ear. The fore legs have the same colour as the body. The hands are grizzled blackish and pale buffish, the general appearance being rather dark. The »Mars yellow» extends from the hind legs down on the feet (in the type), but the scanty hairs of the toes are partly paler, partly brown making the general colour rather dark. (The latter arrangement holds good for the whole hind-foot of the other specimen.) The under surface white in the centre, pale buff on the sides. The scanty under fur in the white region very pale grey (a little more plumbeous grey in the other specimen). The hairs of the upper side of the tail are blackish brown, those below pale buffish with a sharp line of demarkation. There are about 11 (10—12) rings of scales to the centimetre.

The colour is thus on the whole similar to that of the Aberdare race, but to judge from THOMAS' description, there are also some discrepancies. The *Mylomys* from Donya Sabuk appears to have larger ears, collectors measurement 22 mm., in dry state about 20, against 17 in the Aberdare race. The collectors measurements of head and body of the two specimens are resp. 161 and 141 mm., of tail resp. 145 and 138 mm. Especially the latter measurements exceed the corresponding one of the Aberdare race viz. 102 mm. and that is also the case in a dry state.

Dasymys savannus HELLER.

1 adult ♀ collected at Donya Sabuk 11 Febr. 1914.

It is possible that this specimen represents a somewhat

[1] Ann. Mag. Nat. Hist., ser. 7, Vol. XVIII, 1906, p. 226.

aberrant race with ears and tail more hairy than in the typical form. The skull is also a little smaller with a condylo-incisive length of only 35 mm., although other measurements are rather similar to those recorded by HELLER. As there is only one specimen, it is, however, difficult to express a definite opinion.

A young animal caught at the same locality 9 Febr. is probably of the same species, but its colour is much greyer.

Epimys coucha panya HELLER.

A young specimen from Juja farm $^{24}/_{1}$ and another from Donya Sabuk $^{10}/_{2}$ 1914.

Epimys hindei THOMAS.

Three specimens from Donya Sabuk resp. $^{21}/_{1}$, $^{1}/_{2}$ and $^{16}/_{2}$ 1914.

Epimys jujensis n. sp.

A large, long-tailed Rat with dark feet, apparently in some respects resembling *Epimys rattiformis* MATSCHIE, but partly differing from the same as well in colour as in dimensions.

Fur above rather harsh, basally slaty grey, with tips most similar to »dark fawn» (Rép. de Couleurs 307,2). The back is thickly overlaid with long brownish black, or at least black-tipped hairs, which produce a general colour of dark brown. The sides of the body are lighter and more greyish, because the tips of the fur there is paler, almost fading to sandy, while the grey basal parts become visible, and the long hairs are less numerous and their tips less dark brown. On the hind quarters, the tighs and at the root of the tail the »dark fawn» dominates. Lower parts uniform, rather dark slate grey, except that the scrotal sack has a brownish tinge. The fore legs and hands are dark brown, but the fingers white; hind legs, feet and toes dark brown. Tail uniform above and below, sparsely beset with short black hairs, which in the basal half are scarcely longer than the fully visible scales. $9\,^{1}/_{2}$ — 10 rings of scales to the centimetre at the middle and basal half of the tail, 17—18 rings of scales to the centimetre near the tip of the tail where also the hairs equal

two rings or more in length. Ears practically naked. Whiskers blackish, the longest reaching to the tip of the ears. Length of head and body according to collector 177, the skin from tip of snout to vent 205 mm.; tail according to collector 211, in dry state from anus to tip 225 mm. Ear 23 mm. (collectors measurement). Hind foot, dry (s. u.) 36 mm.

Skull: greatest length 42,6 mm. condyloincisive length 40,2 mm., breadth of braincase across squamosal region 16,7 mm., least interorbital breadth 6,2 mm., length of nasals 15,5 mm., mesial length of frontals 13 mm., of parietals 8 mm., of interparietal 6,7 mm., foramina palatina 8 mm., diastema 12 mm., length of upper molar series 6,4 mm., length of bullæ 7,4 mm.

The lateral ridges of the skull very well developed, especially strongly raised above the orbits. The greatest breadth across these ridges is 14,5 mm., and the lateral length of the parietal along the ridge 13,8 mm. The outer tubercle of first lamina of m^1 less developed than in *E. rattus*.

The type is an adult male caught at Juja farm the 20th of Jan. 1914. It has considerably larger hind feet than *E. rattiformis*, and differs also in some other dimensions as well as with regard to the »dark fawn» colour on the hind quarters and the white fingers.

Zelotomys hildegardeæ Thomas.

An old male with much worn teeth caught at Donya Sabuk $^{31}/_{1}$ 1914. The tail is comparatively dark on the upper side.

Mus (Leggada) triton murilla Thomas.

To this race I refer four small mice collected at Donya Sabuk resp. $^{11}/_{2}$, $^{15}/_{2}$, $^{17}/_{2}$ and $^{19}/_{2}$ 1914. The two first are rather young, the two others had according to the collector the following measurements:

Head and body . . .	75 mm.	78 mm.
Tail	50 »	45 »

The dry hind foot (s. u.) appears to be about 16 mm.

The specimens vary somewhat in colour. In the youngest the lower side is more whitish than in the adult.

Arvicanthis abyssinicus subsp.?

Two female specimens from Donya Sabuk (caught resp. $^{30}/_{1}$ and $^{1}/_{2}$ 1914) are very dark, considerably darker than a specimen of *A. a. nairobæ* ALLEN with which I have compared them. In the larger specimen the colour of the ventral surface hardly differs from that of the flanks which are a little paler than the back. The latter is blackish brown, grizzled with dirty whitish, or pale straw colour.

The collectors measurements are:

Head and body . . .	134 mm.	115 mm.
Tail	113 »	114 »
Hind foot	30 »	30 »
Ear	19,5 »	16 »

Unfortunately the skull of the larger specimen has been broken in the trap. The length of the upper molar series is 6,5 mm. and the least interorbital breadth is 4,8 mm. These latter measurements are smaller than the corresponding ones of *A. a. nairobæ*, although the animal itself is as large. It is possible that these specimens represent a separate race, but for the present this is difficult to decide without more material.

Canis (Lupulella) mesomelas SCHREBER.

A skin and a skull with rather worn teeth are found in the collection, but unfortunately the exact locality is not indicated. As H. R. H. Prince VILHELM chiefly hunted near Juja farm and Donya Sabuk it appears most probable that this specimen has been collected near either of these places. The specimen is a male, but its skull is rather small as the measurements quoted below indicate.

Maximum length	150,5 mm.
Condyloincisive length	142,3 »
Basicranical length	134,4 »
Zygomatic breadth	87,4 »
Greatest width of braincase	50,3 »
Length of nasals	50,3 »
Interorbital breadth	31,8 »
Distance from hind surface of m^2 to front of c .	65,6 »
Length of upper carnassial (crown)	(15,8) 16,0 »

At another opportunity[1] I have communicated a series of measurements of skulls of *Canis mesomelas* from as well South as East Africa and as a conclusion of these I said: — — »the superior size of the males in South Africa is quite apparent. On the other hand it is plainly seen that female skulls from Damaraland, Kilimanjaro, Sotik, the Guaso Nyiri district and Eritrea agree very closely in size so that there cannot be based any racial difference on the size as far as the black-backed Jackals of these countries are concerned.»

The present material does not allow any addition to this, although it confirms the already stated fact that northern male Jackals of this species have smaller skulls than the southern.

HELLER has recently created a subspecies of this Jackal which he names *Thos mesomelas mcmillani*. The type of this is from Brit. East Africa and appears to be individually aberrant in possessing a white tip to the tail, with regard to which it differs from a number of other specimens collected by the quoted author himself in British East Africa. Otherwise HELLER's subspecies is said to differ from the typical *mesomelas* from South Africa by being less rufous and by the light underparts, »throat and belly being white or pale buff instead of rufous». I have compared the present specimen as well as specimens from Guaso Nyiro, British East Africa, and from Eritrea with South African specimens from Damaraland, Limpopo and Natal and found the former if anything more brightly rufous than the latter. The South African specimens in this museum have also the throat and belly white. As far as can be seen from the material on hand the superior size of the southern males is thus the only difference that hitherto can be recognized.

Canis (Schæffia) lateralis SUNDEVALL.

1 ♂ juv. 1 ♀ $^{20}/_{1}$, 1 ♂ $^{23}/_{1}$, 1 ♀ $^{24}/_{1}$ 1914, all from Juja farm. All the skins are in good condition with the fur not worn. The side stripes are therefore well visible, but more strongly developed in the older than in the younger specimens. The white tip of the tail is largely developed in all. The collector has recorded the following measurements:

[1] K. Sv. Vet. Akad. Handl., Bd. 48, n:o 5, p. 55.

	♂ juv.	♂ adult but young	♀ ad.	♀
Head and body . . .	742 mm.	655[1] mm.	590 mm.	630 mm.
Tail	400 »	430 »	430 »	400 »
Hind foot	172 »	170 »	162 »	157 »
Ear	93 »	89 »	90 »	82 »

HELLER has recently created two new subspecies of this Jackal.[2] One of these from Kisumu, Brit East Africa, is named »*bweha*» and is said to have only »a few scattered white hairs hidden among the black hairs of the tip» of the tail. By this it differs very conspicuously from the present specimens. »*Bweha*» appears also to have smaller dimensions of tail and hind foot viz. 310 and 148 mm. in an adult male constituting the type. The other subspecies »*notatus*» is from the Loita Plains, Brit. East Africa. It is said to »be distinguished from all other races by its white underparts». The present specimens from Juja farm are all more or less overlaid with ochraceous or buffish on the underparts, but just because this is subject to variation, it might sometimes be absent, and it seems hardly to suffice for the establishment of a new subspecies, the less so as HELLER found at the type locality of *notatus* also a female which had »a fulvous wash on the underparts». He regards this colouration as a sexual character. With regard to the present specimens this is not confirmed, although one of the males is whiter than the rest. Another difference between *notatus* and the typical *adustus* according to HELLER should consist therein that the ears of the former were »drab», while those of the latter were »russet». The ears of the present specimens are blackish brown densely and finely sprinkled with whitish rings to the hairs. By this a greyish brown general appearance is produced. The ears of SUNDEVALL's type specimens (♂ & ♀) agree completely with those of the specimens from Juja farm except that they are somewhat paler which may be due to fading already during the lifetime of the animals because their pelage is rather worn. Although the colour of the ears of the types is not exactly »drab», it is much more like that colour than »russet». It is possible that HELLER has interpreted SUNDEVALL's expression in his diagnose of *Canis adus-*

[1] Ought probably to be 755!

[2] SMITHSON, Misc. Coll., Vol. 63, n:o 7, p. 3—4.

tus »auribus extus fuscis», as if the latter author had meant to say that the ears were »russet», but it is of course a great difference between fuscous and russet. If the fuscous is sprinkled with whitish something like »drab» may be obtained, and it will thus appear that the ears of HELLER's *notatus* is not so very different from those of the typical *adustus*.

It remains then to say a word about the presumed smaller size of the skull of *notatus*. The condyloincisive length of the type skull is stated to be 152 mm. The same measurement of SUNDEVALL's female type is 151 mm. The skull of the old female from Juja farm is certainly much larger, but as it is somewhat damaged in the the occipital region no fully exact measurement can be recorded, the condyloincisive length has probably been 159 mm. The other specimens are not quite fullgrown.

It does not appear, however, as if there was any reason for separating these specimens from *adustus*, and I cannot help thinking that the *notatus* might need somewhat better foundation as well.

Mungos sanguineus WROUGHTON.

A fine series of 8 specimens, one from Juja farm $^{21}/_{1}$ 1914, the others from Donya Sabuk $^{28}/_{1}$ to $^{19}/_{2}$ 1914.

Of these specimens the one from Juja is the darkest, tending to melanism, especially on the back, but strange enough at the same time the light rings of the hairs are more whitish than in the others.

The condyloincisive length of the skulls of fully adult males is about 66—67 mm., and of females about 64—64,5 mm.

Mungos paludinosus rubescens HOLLISTER.

Four specimens from Donya Sabuk, Febr. 1914. Two of these are rather young and a third has no skull, but the fourth is a fine old male. The skull of this specimen has the following dimensions:

	♂
Greatest length	113,5 mm.
Condyloincisive length	104,4 »
Basal length	97 »

	♂	young »♀»
Zygomatic breadth	61,5 mm.	
Interorbital »	18 »	
Postorbital constriction	14,2 »	
Breadth of braincase	38,4 »	
Mastoid breadth	42,4 »	
Palatal length from gnathion	59 »	
Breadth of posterior palate	9 »	
Upper tooth row including canine	38,7 »	
» molar series	30 »	
Greatest horizontal diameter of p^4	11,6 »	12 »
» » » » m^1	10,8 »	10,6 »
» » » » m^2 (worn)	6,6 »	6,6 »
Lower molar series	33,5 »	—
Length of m_1	9,5 »	9,5 »
» » m_2	5,8 »	6,1 »
Height of bulla from bony ledge to its ventral surface	14,0 »	13,2 »

In the year 1912 I described a Water Mungoose [1] which I had obtained the year before at Nairobi, Brit. East Africa, and I drew the attention to the fact that in several respects with regard to dimensions of the skull it resembled *M. p. mitis* and differed from *M. p. robustus*. The same year HOLLISTER [2] named a Water Mungoose form Kilimanjaro *M. p. rubescens*. His description of the colour of this race agrees very nearly as well with the same of my specimen from Nairobi as with that of the present four specimens. The above recorded skull measurements are also not much different from those of HOLLISTER's type as far as the latter have been published. The interorbital breadth of HOLLISTER's type is not stated. Compared with my specimen from Nairobi, in which this measurement is 20 mm., the specimen from Donya Sabuk appears to have a rather narrow interorbital space, but a specimen from Kilimanjaro is somewhat intermediate in this respect having the measurement in question 19,5 mm. The same specimen from Kilimanjaro has rather large teeth viz. p^4 12,6 mm. and m^1 11,2 mm. These facts prove a rather great variability of the East African Water Mungooses which also extends to the colour of the fur, some being more black than the others. The long, glossy, overlying hairs are of different size, the longest are usually

[1] K. Vet. Akad. Handl., Bd. 48, n:o 5, p. 69.

[2] Proc. Biol. Soc. Washington., Vol. XXV, 1912, p. 1.

entirely black, the somewhat smaller have as a rule a subterminal bay or rufous ring. In some instances there is more than one ring to each hair but, unlike the case with the South African race, this appears to be an exception.

Genetta suahelica Matschie.

Four complete specimens (2 ♂♂, 2 ♀♀) and a skull from Donya Sabuk $^{31}/_{1}$—$^{14}/_{2}$ 1914, and a skull (♀) from the same locality $^{19}/_{2}$.

These specimens display very plainly the sexual difference as the males have their markings rufous, the females (almost) black.

Still another male specimen from Juja farm $^{24}/_{1}$ 1914 is somewhat different from the others. Its spots are black only with a few rufous-ringed hairs, chiefly in the middle of the two upper series of spots. In this same specimen m^1 appears also to be narrower in antero-posterior direction (i. e. the heel is narrow and not so triangular in outline) than in the specimen from Donya Sabuk. I suppose, however, that this only is an individual variation as these Genets are rather variable as well with regard to colour as to size. None of the present specimens have a condylo-incisive length amounting to 90 mm., but in one male Genet of this species from Kilimanjaro I have found the same measurement to be 92 mm., and in another from the same locality it is even 94 mm. The last specimen is melanistic, which proves that melanism may be united with great bodily size and strength (contrary to the usual case with albinism).

? Crocotta panganensis Lönnb.

A skull of a Spotted Hyena in this collection resembles with regard to its dimensions perhaps most this race. It has been collected at Donya Sabuk.

Felis ocreata ugandæ Schwann.

A fine specimen from Donya Sabuk caught $^{14}/_{2}$ 1914. The collector has given the following measurements: head and body 515 mm., tail 380 mm., hind foot 149 mm. and

ear 63 mm. These do not quite agree with those of SCHWANN's type, but are somewhat larger except the length of head and body. The colour is, however, similar to the description by the author quoted, and still more to the notes by POCOCK [1] on a cat caught north of Fort Hall (kept in the Zool. Garden in London), and referred to *F. o. ugandæ*. The upper carnassial of the present specimen is larger than in the type, its outer length being 12,6 mm. (against 11 mm. in the type). It would appear from this that the cats of this race are somewhat larger further east than in Uganda. Such a hypothese is, however, in contrast to the opinion of HELLER. This author has created a new subspecies which he has named *F. o. taitæ*,[2] the type being from Voi, Brit. East Africa. Geographically the cat from Donya Sabuk ought to belong to this subspecies, if it really is distinct from *F. o. ugandæ* about which I am not convinced. HELLER says that his *F. o. taitæ* shall differ from *F. o. ugandæ* »by its decidedly lighter coloration and smaller body size». With regard to the latter character it must be remarked that HELLER's type specimem is a female and perhaps a rather small specimen. And with regard to the colour SCHWANN has stated that the female of *F. o. ugandæ* is lighter than the male.

To return to the question about the size it has already been remarked that the carnassial of the present specimen from Donya Sabuk is larger than that of *F. o. ugandæ*. Unfortunately the skull of this specimen is broken behind so that several dimensions cannot be stated, but those recorded below indicate a rather large size.

Zygomatic width	about 72	mm.
Interorbital »	18	»
Length of palate to tip of premaxillary	39	»
Breadth of mesopterygoid fossa	13,5	»
Length of nasals	27,4	»

These measurements are subequal to, or larger than those of the male *F. o. ugandæ*, and, of course, still larger than those of the female type of *F. o. taitæ*. It appears thus rather doubtful whether British East Africa is inhabited by a smaller subspecies of Wild Cat different from that of Uganda.

[1] Proc. Zool. Soc. 1907.

[2] Smithson. Misc. Coll. Vol. 61, n:o 13.

Procavia (Heterohyrax) brucei conf. **hindei** WROUGHTON.

An interesting series of five specimens from Donya Sabuk collected $^{30}/_{1}$—$^{12}/_{2}$ 1914 appear to belong to this species.

The largest of them is an adult male in stage VIII. Length of head and body (according to collectors measurements) 407 mm., hind foot 66 mm., ear 32 mm. (The dry hind foot is, however, only about 60 mm.) The next is a female in stage V. In the lower jaw $\overline{p}_4$ has just been fully developed. Length of head and body 394 mm., hind foot 60 mm. (dry 58 mm.), ear 29 mm. The three remaining specimens retain yet their upper milk-incisors, but the permanent upper incisors are just beginning to appear in the two oldest ones. All these three specimens have on either side of the upper jaw a series of six teeth. The foremost of these is a small double-rooted tooth which has by various authors been regarded as *dc*. It resembles closely the condition which recently has been figured by BRAUER in his paper »Zur Kenntniss des Gebisses von *Procavia*», fig. 10.[1] In the lower jaw the four milk-premolars and the first molar are developed. These three specimens ought to represent stage III. The largest of them, a male, has according to the collector the following measurements. Head and body 350 mm., hind foot 53 mm., ear 27 mm. The smallest, a female, head and body 338 mm., hind foot 53 mm., ear 27 mm. The difference in bodily size is thus quite conspicuous, although the skulls represent the same stage. The greatest length of the three skulls is resp. 70, 69 and 66 mm.

In the first mentioned old male (in stage VIII) the teeth are well worn. The pectinated portion of the lower incisors is worn off, and the first premolar of the lower jaw has fallen out, so that only a small remnant of its root remains projecting a little from the alveole closely adpressed to the anterior root of the second premolar.

As to colour all the five specimens are very similar.

And this colour appears to be rather better expressed by GRAY'S words[2] »yellow grey-brown, closely and minutely punctulated with black», than with THOMAS' »clear grey,

[1] Sitz.ber. d. Ges. naturf. Freunde Berlin. Jahrg. 1913, n:o 2. p. 121.

[2] Cat. of Carnivorous etc. Mamm. Brit. Mus. 1869, p. 287.

finely grizzled with white». The general colour is produced by light fawn-coloured or buffish subterminal rings to the otherwise blackish brown visible parts of the hair. If the dark thin tips are worn off, and the pelage bleached the general colour is, of course, paler. The under fur is somewhat variable. It is more or less dark slaty grey at the base, then comes a lighter zone passing from whitish to brownish. The sides are lighter than the back because the rings to the hairs are there whitish and more dominant. The lower side is white. There is in all the specimens a quite distinct whitish spot above the eye.

I have described the colour of these specimens to facilitate comparison with others, because it appears to be not quite clear into how many geographical races *P. brucei* may be subdivided.

For the same purpose the following cranial measurements are annotated:

	♂ stage VIII
Greatest length	87,5 mm.
Condylo-incisive length	82,6 »
Basal length	77,5 »
Tip of nasals to occiput	84,4 »
Zygomatic breadth	49 »
Mesial length of nasals	20 »
» » » frontals	32,5 »
Tip to tip of postorbital processes	38,3 »
Breadth across outside of m^1	26,8 »
Diastema	11 »
Length of upper molar series	30 »
Breadth of m^1	6 »

The parieto-interparietal suture is, of course, obliterated already in the youngest of the specimens.

In the oldest specimen there is »a pair of protuberances on the posterior margin of the palate» as WROUGHTON has described in *P. brucei hindei*, but these protuberances, although raised above the palate-floor, do not extend beyond the posterior margin of the palate. In the younger specimen they are entirely absent. They represent, of course, insertion-points for muscles and may probably be very variable individually. The cranial measurements of *P. b. hindei* as quoted by WROUGHTON for an old female (stage VIII) are smaller than those above.

WROUGHTON's subspecies appears also to differ in colour as he describes its colour as »'Mars-brown' ticked with whitish». This indicates a reddish tone[1] in the brown which is entirely absent in the specimens from Donya Sabuk. The oldest specimen with somewhat worn fur comes nearest to »Prouts brown», the others are as already described grizzled with buffish and blackish brown. The face of *P. b. hindei* is said to be like the back, »but the obsolescence of the pale tips of the hairs between the eyes making it darker».[2] Any such obsolescensce of the pale tips of the hairs on the forehead is not apparent in this series, and only in one or two of the youngest the interorbital area is somewhat, but not much, darker than the back.

Although from a geographical point of view the Rock-rabbit of Donya Sabuk could be suspected to be *Procavia brucei hindei*, we thus find that it differs from the description of that subspecies in several respects as well with regard to colour as to skull measurements. It is, however, a well known fact to every one who has studied these animals, that they display a considerable amount of variation so that it often is very difficult to decide with full certainty to which race and even »species» a specimen ought to be referred. Since I have had, some years ago, the opportunity of studying the conditions of life of these animals in East Africa, I think that I understand the cause of this variation to some degree. This variation has its origin in isolation and I will endeavour to explain this as follows. Very often such rocky formations which constitute the home of a colony of Hyraxes are situated in a great distance from each other, and the intervening stretches of country, whether steppe or thornbush, are far too broad to be crossed by the Hyraxes with any degree of safety, or are perhaps even quite unsurpassable. An exchange of individuals between the different colonies is in many cases thus, if not impossible, so at least very difficult and very scarce. Sexual intercourse between the colonies does not take place, or very seldom. In fact it may often happen that these colonies are fully as isolated as if they were situated on different

[1] Perhaps this has something to do with the red soil at the type locality Fort Hall?

[2] Ann. Mag. Nat. Hist. (8) Vol. 5. 1910, p. 107—108.

islets in a sea. The biological isolation in the former case may result in a physiological, or morphological divergence just as well as the geographical isolation in the latter case. Small individual differences or variations may thus by inbreeding in the different colonies become more or less fixed so that, so to say, family races originate. This is an analogous phenomènon to the well known fact that the stock from one farm-yard often is to an experienced breeder recognizable from that of another, although the distinguishing characteristics are of minor importance, and both belong to one and the same race. A still better example, which better excludes the possible selecting influence of man, is that a zoologically interested sportsman often can recognize the roebucks from one estate from those of another, or the red stags from one forest from those of another, although in both cases there cannot be spoken of any real racial difference. With regard to the Hyraxes the isolation may be in many cases more complete as these animals probably are not apt to wander far from their homes. The divergence may then continue and increase, and finally become so completely fixed that it can be spoken about races in some cases, and subspecies in others and so on. This is, I think, an acceptable explanation of the state of affairs which is displayed by the Procavias of the *brucei*-group, and perhaps other groups as well.

Mutatis mutandis the case is, according to my opinion, also very similar with the Dendrohyraxes. With regard to them it is the isolation from each others of the forests which they inhabit, that causes the genesis of diverging races and subspecies. In East Africa especially, there are numerous forests, often confined to higher or lower mountains, which are completely isolated from each other by vast stretches of open steppe country. These mountain-forests form biological islands in a still higher degree than the rock-fortresses of the Hyraxes mentioned above. They are inhabited by a fauna which is entirely different from that of the surrounding steppe, and as this fauna is adapted to the forest-life, it is quite confined to the forests. For many of these forest- resp. arboreal animals it is unnatural, or impossible to cross the open land. Their ancestors have arrived to the place during a period with other climatic conditions when the country was more evenly covered with forest. The mem-

bers of the present fauna of these mountain-forests have later on become isolatad to their abode when the climate changed and became more dry so that the forests, formerly also covering the plains, by and by dwindled away and disappeared. The isolation thus effected promoted the chances for the development of new forms in a similar way as sketched above. The *Dendrohyrax* to be described below is to be understood as a species created by such isolation.

As the Dendrohyraxes with regard to their brachyodont teeth represent an earlier stage of developement than at least the most typical members of *Procavia* proper, which have large and hypsodont teeth, it appears rather probable that the former are the more primitive forms, and that the arboreal life is to the *Hyracoidea* the original life. With other words it means that they became Hyraxes by acquiring the faculty of climbing and by adapting themselves to the arboreal life. The life on and among rocks should thus be secondary. I think this proceeding could be explained in the following way. Originally the greater part of Africa was covered with forests. For such a theory speaks strongly the fact that members of the in present time chiefly »western» forest fauna are to be found far to the east in quite isolated forests, to which they impossibly had been able to spread under the now prevailing conditions, and they are thus relicts. All Tree-Hyraxes in isolated forests in the east are such relicts. But when the climate changed so that the forests, originally continuously covering the whole country, died away except on the mountains and some other places with sufficient moisture, so that the land between these isolated forests gradually changed into steppe and thornbush, the conditons of life for the Hyraxes became very different. Some of them adapted themselves gradually to live among rocks and use the crevices and cracks in them as places of refuge instead of the hollow trees which had served their ancestors. By and by they also had to adapt themselves by force of circumstances to feed on coarser plants and grass instead of the diet of tender leaves and fruits of the forest trees which suits the Tree-Hyrax. In connection with increased wearing of the teeth caused by the coarser diet they developed hypsodont teeth just as has been the case under similar conditions with many Ungulata. They became

diurnal in habits, and by that they got the opportunity of enjoying warmth and sunshine during the time when they moved about, and in night time they retired to their holes in the rocks where they were protected against the chill of the night. The thick and soft fur of the *Dendrohyrax*, so very convenient, not to say necessary, to the nocturnal forest dweller, was therefore reduced to the comparatively short and harsh fur of the »Rockrabbit», and so on.

Procavia (Heterohyrax) sp. n.?

In the collection is also found a skull of a *Procavia*, collected at Donya Sabuk $^{15}/_{2}$ 1914, which cannot be referred to *P.* (*H.*) *brucei*, but unfortunately there is no skin to this skull. It represents stage VI as the tip of m^3 is just appearing. The parieto-interparietal suture is obliterated. Of the mesial suture between the parietals only the anterior portion can be traced. The orbit is not closed behind, although the postorbital processes both from the frontal and the zygomatic arch are rather long. These facts indicate a member of the *Heterohyrax*-group. The upper incisors are smoothly rounded off on their anterior surface, it is thus a female skull, and at the same time this fact proves that is does not belong to (*H.*) *brucei* in which the upper incisors are angular and ridged in front even in the female.

From the *brucei*-skulls from the same locality this skull differs in several other respects. The suture between the supraoccipital and the interparietal is in this specimen strongly and evenly curved, almost forming a complete semicircle with the concavity in front, while in all the *brucei*-specimens the same suture is quite straight and completely transverse, or in the old male even a little convex in front.

The constriction between the nasal and frontal portions of the skull is quite strong in such a way that the nasals when seen from above appear quite parallel-sided, but in *brucei* they are decidedly wider behind. The foremost portion of the frontals is on a level with the nasals, but the central and posterior parts of the same rise considerably above the fronto-nasal plane. In this way the profile contour has a somewhat dog-like appearance with a considerable depression at the anterior portion of the orbits. In this respect the skull in ques-

tion differs from other skulls of Hyraxes representing the same stage in which the fronto-nasal profile-contour is a straight sloping line. In younger specimens the posterior frontal region often is more or less arched, but there is no such depression on a level with the anterior portion of the orbit as in this skull.

The anteorbital process of the lacrymal bone is triangular and rather pointed. In front of the lacrymal bone the maxillary meets and forms a suture with the frontal thus excluding the nasals from contact with the lacrymal. In this respect the *brucei*-skulls from the same locality differ as in all of them the nasals meet the lacrymal more or less broadly. On the other hand the nasals are excluded from the lacrymal in the *Dendrohyrax* from the same locality.

Another feature in which the present skull remarkably differs from the two others from the same locality is the shortness of the frontals. The mesial length of these bones is decidedly shorter than the distance from the fronto-parietal suture to the suture between interparietal and the occipital. In the skulls of *P. brucei* and those of the *Dendrohyrax* from the same locality the mesial length of the frontals is longer than the other distance, mentioned above, in all specimens of corresponding age, and still more so in the older ones. In younger specimens the frontal region is relatively shorter when compared with the parietal region than in older specimens. This feature is thus to a certain degree to be regarded as a juvenile characteristic, but it does not explain the difference between the *brucei*-skulls and the one now in question, especially as there are so many other discrepancies.

The basioccipital of this skull is comparatively very narrow its width at the suture with the basisphenoid being only 4,8 mm., while the same measurement in a *brucei* skull of the same stage is 6,8 mm., and already in a *brucei*-skull of stage III (also from the same locality) it is 5,5 mm., and in stage VIII 7,5 mm.

The dimensions of this skull together with those of a likewise female *brucei*-skull are recorded below. Both skulls belong to stage VI, or the *brucei*-skull perhaps intermediate between stages V and VI as m^3 is not quite up to the level of the bone, although visible.

	P. (*Hetero-hyrax*) n.? ♀	*P.* (*H.*) *brucei* ♀
Greatest length	75 mm.	77,2 mm.
Condylo-incisive length	72 »	73,2 »
Basal length	67 »	68,4 »
Tip of nasal to occiput	69 »	73,4 »
Zygomatic breadth	41	—
Mesial length of nasals	14,6 »	16 »
» » » frontals	22,3 »	28 »
Frontoparietal to interparieto-occipital suture	27,5 »	26,5 »
Palatal breadth across outside of m^1	21,5 »	25,5 »
Diastema	11 »	10 »
Molar series front of p^1 to back of m^2	25,5 »	27,3 »
Breadth of m^1	4,9 »	5,7 »
Breadth of m^2	5,2 »	6,3 »

From the last two of these measurements it is apparent that *P. brucei* has very much larger teeth than those of the skull just described.

As there is no skin to the skull and only one specimen I do not like to give any name as it is not entirely excluded that it might be anomalous in some respect or the other.

As far as I can see, however, this skull cannot be referred to any of the hitherto known forms.

Procavia (Dendrohyrax) Vilhelmi n. sp.

A *Dendrohyrax* related to *P.* (*D.*) *stuhlmanni*, but smaller with smaller teeth and skull, and apparently lighter in colour.

The general colour of the back is grizzled and marbled with black and greyish white. This colour is produced in the following way. The basal part of the hair is black to an extent of about 25 mm., then follows a white, or dirty whitish (but lighter than »putty colour» and more like »stone colour», DAUTHENAY, Rép. de Coul. 312,1) ring, about 4—5 mm. broad and finally a black tip of much varying length in the individual hairs; some of the longest hairs are entirely black. On the middle of the back, especially behind the dorsal spot, the black is dominating. The sides are lighter, grizzled grey, and the lover flanks are uniform grey, which no doubt, at least partly, is due to the black tips of the hairs having been worn off to some extent. The black of the basal parts

has towards the belly turned to blackish grey, and it does not extend so high up on the hairs.

The dorsal spot is pure white, linear with an extent of nearly 6 cm. The hairs are entirely white from tip to base and measure about 40—45 mm. in length.

On the upper neck the light rings of the hairs assume a somewhat yellowish tinge, so that their colour resembles »pale ecru» (DAUTHENAY, Rép. de Coul. 66).

The upper part of the head is darker than the back, blackish, sparsely grizzled or ticked, with whitish or putty colour. Above the eye an undefined greyish white spot. Face and sides of head black grizzled with white, more strongly so behind the corner of the mouth. Lips white. Across the chin below the white lower lip a dark band of the same colour as that of the cheeks, i. e, black and grizzled with white. The hairs of the inner side and the margin of the ears white, on the outher side white with long black tips. Whiskers black.

The whole of the lower side from the dark band across the chin (mentioned above) to anal region white, but on the throat, fore neck and breast the fur is basally dark slaty grey, less so on the belly. But even in such places where the fur mostly is dark basally, there are spots, as f. i. between the fore legs, where the hair is entirely white.

Feet and toes covered with white-tipped, basally dark brownish hairs.

Type ♂ ad. (stage VIII). Length of head and body (collectors measurement) 401 mm. Hind foot 53 mm. Ear 30,5 mm.

In addition to the type skull there is another one, also of a male in stage VIII. Measurements of both these are recorded below:

	Skulls of *Dendrohyrax* from Donya Sabuk.	
	type ♂ ad.	♂ ad.
Greatest length	82 mm.	85 mm.
Condylo-incisive length	80 »	81,8 »
Basal length	(76,4) 73,5 »	(78,7) 76,5 »
Tip of nasals to occiput	76,8 »	80,4 »
Zygomatic breadth	44,5 »	47 »
Mesial length of nasals	16,8 »	19,4 »
» » » frontals	30,5 »	31 »

	Skulls of *Dendrohyrax* from Donya Sabuk	
	type ♂ ad.	♂ ad.
Greatest breadth of forehead at postorbital processes	37 »	37 »
Palatal breadth between inside of m^1	14 »	14 »
» » » outside of m^1	24,6 »	24,7 »
Diastema (measured to alveolar margin of i^1)	11,5 »	13,4 »
Length of molar series	31,5 »	31,3 »
Breadth of m^1	5,3 »	4,9 »
Diastance (least) between outside of parietal ridges near the interparietal suture	11,8 »	14,0 »

This *Dendrohyrax* is widely different from its geographical neighbours of the same subgenus. It has no likeness whatever with *P.* (*D.*) *valida* TRUE of Kilimandjaro which is brown above with orange-coloured dorsal spot and has more or less cinnamon-coloured or buffy lower side. With *P.* (*D.*) *crawshayi* THOMAS from Kenya it is perhaps more nearly related, but the former has the dorsal hair »slaty grey basally, gradually darkening to black at about three-fourths their length», and the »under surface along middle line, from interramia backwards, fulvous or deep buffy» — — —. *P.* (*D.*) *crawshayi laikipia* DOLLMAN from Rumruti is lighter and approaches in this respect more to the present species than the main form does. It has, however, a much larger skull with condylo-incisive length measuring as much as 95 mm., and the maxillary tooth-row 37 mm. *P.* (*D*) *neumanni* MATSCHIE from Zanzibar has »Rückenhaare von der Wurzel bis gegen die Spitze dunkelgrau — — — mit 3 hellen und 3 dunklen Ringen». *P.* (*D.*) *scheelei* MATSCHIE has also the dorsal hair basally dark grey. *P.* (*D.*) *scheffleri* BRAUER has the dorsal hair »braun, nach der Spitze zu mit etwas rötlichem Ton, mit einer 0,7 [cm.] langen kittfarbigen Binde und einer 0,2 [cm.] langen rötlich braunen Spitze» etc.

P. (*D.*) *terricola* MOLLISON from East-Usambara has the colour of the back »dunkelbraun, rostbraun überflogen» and the hairs are basally grey. The hairs of the dorsal spot are »im ersten Drittel schwarz, im mittleren gelblich weiss und im letzten hellrostbraun gefärbt».[1]

With regard to the black basal parts of the hair of

[1] Morph. Jahrb. 1905, p. 241.

the back the present species resembles *P.* (*D.*) *stuhlmanni* MATSCHIE from Bukoba. The latter appears, however, to be a much larger animal with the distance from tip of nasals to the occiput 92 mm., diastema 15 mm., length of upper molar series 34—35 mm. etc. These measurements and other outer differences together with the widely different geographical origin, with several other Hyraxes inhabiting the intervening area, prohibit an identification with the Tree-Hyrax from Donya Sabuk which thus appears to be a quite distinct form. From *P.* (*D.*) *bettoni* THOMAS & SCHWANN it differs in colour as the former has chocolate-brown hairs with pale drab, subterminal rings and black tips. In addition to this the dorsal spot of *P. bettoni* is »small, oval», and its hairs pale yellowish white, and »hands and feet pale buffy.»[1]

Nesotragus moschatus DÜBEN.

1 head-skin and skull of a buck presumably from Donya Sabuk.

The condylobasal length of this skull is 112 mm. This dimension varies in the material of male Sunis in this museum from 108 to 118 mm., both extremes being adult bucks from the Nairobi forest.

HELLER has distinguished the Suni of the Kenia-district and the Aberdare Range as a separate subspecies which he has named *akeleyi*. This is said to be darker than the typical *N. moschatus* — — — »the white of the throat separated medially for half its length by a fulvous band; legs darker with black pasterns and stripe in front to knee». — — Regarding these characteristics it must be remarked that the general colour is very variable as I have already pointed out before,[2] some specimens from one and the same locality being »more reddish» others »dark, chestnut brown». Black or blackish pasterns are to be seen in VON DÜBEN's type-specimens as well as in specimens from Kilimanjaro, Kenia, and Meru boma. The dark stripe in front of the fore-legs is more or less developed, but may also be traced in VON DÜBEN's types. Perhaps the white of the throat is not so

[1] Proc. Zool. Soc. London 1904.

[2] K. Sv. Vet. Akad. Handl., Bd. 48, n:o 5, p. 154, Stockholm 1912.

sharply defined from the pale fulvous of the lower neck in the types from Zanzibar as it is in continental specimens, but the former are now somewhat faded, so that it is difficult to decide about this. If this difference holds good, however, the Suni from Kilimanjaro is in this respect similar to that of Kenia. The same is also the case with the present specimen, which may be regarded as rather dark in general colouration.

At another opportunity the present author has also stated (l. c.) that the skulls of *Nesotragus* as well display a certain amount of variation f. i. with regard to the development of the nasal processes of the premaxillary. In this specimen these processes are comparatively broad and long so that they meet the lacrymalia.

Connochætes albojubatus Thomas.

A skull (♂) and a head-skin from Donya Sabuk $^{29}/_{1}$ 1914.

Condylobasal length	440 mm.
Greatest breadth	186 »

Bubalis cokei Günther.

Two skulls from Donya Sabuk $^{29}/_{1}$ 1914.

Gazella thomsoni Günther.

Five skulls and head-skins to two of them. 3 of them are from Donya Sabuk $^{29}/_{1}$ and at least one of the others from Juja $^{24}/_{1}$, the fifth is shot $^{12}/_{3}$, but the locality is not indicated on the label.

Gazella granti Brookes.

Two skulls with head-skins of bucks from Donya Sabuk resp. $^{29}/_{1}$ and $^{16}/_{2}$ 1914 and a female skull from the same date as the latter buck.

The condylobasal length of the oldest buck is 265 mm.

Æpyceros melampus suara Matschie.

3 skulls, 2 of which are young semiadult, the third is fully adult, from Donya Sabuk.

The adult skull has the following dimensions:

Condylobasal length	260 mm.
Basicranial length	245 »
Greatest breadth	107 »
Interorbital breadth	74 »
Greatest length of nasals	84 »
» breadth » »	31 »
Distance from orbit to tip of premaxillary	159 »
Upper molar series	78 »

The spread of the horns is small, only 168 mm, from tip to tip.

Cobus ellipsiprymnus thikæ Matschie.

1 skull and a head-skin of a buck shot 29th of Jan. 1914 at Donya Sabuk.

It was of very great interest to obtain this specimen because it proves very plainly that my *Cobus ellipsiprymnus canescens* from Guaso Nyiro is quite a different animal.

C. e. thikæ is altogether darker and more richly coloured. On the neck the warm sepia (Rép. des Coul. 305) is more dominating; the face is a dark shade of warm sepia darkening downwards almost to black, in strong contrast to the broad pure white band round the muffle. The forehead is mixed with »brownish terra cotta» (Rép. de Coul. 322,2) and black. The ears are something between Dauthenays »burnt umber» (304,1) and »cinnamon» (323,2) and are tipped and margined with black in their distal half, white inside. The white eye-mark is about 2 $^1/_2$ cm. broad and extends about 7 $^1/_2$ cm. in front of the corner of the eye, but also 3 $^1/_2$—4 cm. backwards above the eye.

The skull is a little larger than in *C. e. canescens* as the following measurements prove:

Basicranial length	339 mm.
Condylobasal length	360 »
Zygomatic breadth	153 »
Distance from orbit to tip of premaxillaries	225 »
Distance from occipital condyle to front-margin of orbit	174 »

The length of the upper molar series is 104 mm., but it is not normal as on both sides p^2 is pushed out from the row in a mesial direction. Length of horns in a straight line 51 $^1/_2$ cm., along the posterior curve 60 cm., spread of tips 26,2 cm.

Redunca fulvorufula chanleri Rothschild.

A skull with head-skin of a buck shot the 12th of March 1914.

Condylobasal length	200 mm.
Upper molar series	56 »

Phacochærus.

One fine boar skull with head-skin shot $^{29}/_1$ at Donya Sabuk and another shot $^{24}/_2$ 1914.

The exact determination of the Warthogs is connected with several difficulties in consequence of their great variation. These two specimens are not quite alike. The one from Donya Sabuk, although younger with shorter canines and p^3 still remaining, is larger than the other. In general shape, however, they resemble each other, but the smaller has an even comparatively narrower occipital flat area than the larger. Both skulls are narrower than that of the typical *Ph. massaicus* and they have narrower choanæ. These discrepancies indicate perhaps a racial difference, but more material is desirable before this problem with certainty can be solved.

	♂ from Donya Sabuk $^{29}/_1$	♂ $^{24}/_2$
Occipitonasal length	394 mm.	361 mm.
Least interorbital breadth	138 »	125 »
Length of postorbital portion	50 »	48 »
Least width of postorbital flat area	40 »	29 »
Width of the choanæ	30 »	30 »
» » palate inside m^3	37 »	36 »

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